That Which is Claimed:

1. A device for thermally treating at least one optical waveguide; said device comprising:

a radiation source configured to thermally treat at least one optical waveguide;

a first optical system configured to direct a beam, emitted by the radiation source, onto the optical waveguide from a first side, wherein the first optical system generates a beam profile of the beam whose extent in the transverse direction with respect to a longitudinal axis of the optical waveguide corresponds to at least twice a diameter of the optical waveguide, the optical waveguide is positioned completely outside a center axis of the beam profile in the transverse direction with respect to the longitudinal axis of the optical waveguide in the focusing area of the beam inside which the radiation strikes the optical waveguide; and

a second optical system which is positioned behind the optical waveguide in the direction of a beam path of the beam and which reflects radiation which is transmitted past the side of the optical waveguide and directs it onto the optical waveguide from a second side.

2. The device as claimed in claim 1, wherein the second optical system is configured to image the emitted beam profile in a plane parallel to a longitudinal axis of the optical waveguide in a different way than in a plane extending transversely with respect to the longitudinal axis of the optical waveguide.

3. The device as claimed in claim 2, wherein the second optical system is configured to image the beam profile in a noninverted fashion in the plane parallel to the

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longitudinal axis of the optical waveguide and images it in an inverted fashion in the plane extending transversely with respect to the longitudinal axis of the optical waveguide, in particular in each case with an approximate ratio of 1:1.

4. The device as claimed in claim 1, wherein the second optical system comprises a plane mirror and an aspherical lens or a respective combination of optical elements which acts in an analogous fashion, wherein the lens is arranged between the optical waveguide and the plane mirror.

5. The device as claimed in claim 4, wherein the aspherical lens has two different focal lengths in the plane parallel to the longitudinal axis of the optical waveguide and in the plane extending transversely with respect to said longitudinal axis.

6. The device as claimed in claim 4, wherein the plane extending transversely with respect to the longitudinal axis of the optical waveguide a focal length of the aspherical lens is essentially equal to the distance between the lens and the optical waveguide.

7. The device as claimed in claim 1, wherein the second optical system comprises a plane mirror and two cylindrical lenses or a respective combination of optical elements which acts in an analogous fashion, the lenses are arranged between the optical waveguide and the plane mirror, a first lens of the lenses does not have any refractive power in a plane parallel to a longitudinal axis of the optical waveguide, and a second lens of the

lenses does not have any refractive force in a plane extending transversely with respect to said longitudinal axis.

8. The device as claimed in claim 1, wherein the second optical system comprises a plane mirror, a spherical lens and a cylindrical lens or a respective combination of optical elements which acts in an analogous fashion, the lenses are arranged between the optical waveguide and the plane mirror, the spherical lens has the same refractive power in a plane parallel to a longitudinal axis of the optical waveguide and in a plane extending transversely with respect to said longitudinal axis, and the cylindrical lens does not have any refractive power in one of the planes.

9. The device as claimed in claim 7, wherein a focal length of one of the lenses is essentially equal to the distance between this lens and the optical waveguides in the plane extending transversely with respect to the longitudinal axis of the optical waveguide.

10. The device as claimed in claim 1, wherein the second optical system comprises a cylindrical mirror which is concave in a plane extending transversely with respect to a longitudinal axis of the optical waveguide, and a cylindrical lens, or a respective combination of optical elements which acts in an analogous fashion, the cylindrical lens is arranged between the optical waveguide and the cylindrical mirror, the cylindrical lens does not have any refractive power in the plane extending transversely with respect to a longitudinal axis of the optical waveguide, and the cylindrical mirror

is planar in a plane parallel to the longitudinal axis of the optical waveguide.

11. The device as claimed in claim 10, wherein the plane extending transversely with respect to the longitudinal axis of the optical waveguide a focal length of the cylindrical mirror is essentially half the distance between the cylindrical mirror and the optical waveguide.

12. The device as claimed in claim 1, wherein the device is configured in such a way that a plurality of optical waveguides which are arranged one next to the other can be treated thermally in parallel, in particular can be welded in parallel with optical waveguides lying correspondingly opposite.

13. The device as claimed in claim 12, wherein a distance between two optical waveguides lying one next to the other corresponds to at least a diameter of the optical waveguide, the extent of the beam profile extending transversely with respect to a longitudinal axis of one of the optical waveguides in the focusing area corresponds to at least the sum of the diameters of all the optical waveguides lying one next to the other and of the intermediate distances, wherein the beam profile extends over an outermost optical waveguide by a length of the order of magnitude of at least one diameter of one of the optical waveguides.

14. The device as claimed in claim 12, wherein the optical waveguides lying one next to the other are arranged on the opposite side of a center axis of the beam profile, the extent of the beam profile extending

transversely with respect to a longitudinal axis of one of the optical waveguides in the focusing area corresponds to at least twice the sum of the diameters of all the optical waveguides lying one next to the other and of the intermediate distances.

15. The device as claimed in claim 1, wherein a plane extending transversely with respect to a longitudinal axis of the optical waveguide an angle is provided between an optical axis of the first optical system and an optical axis of the second optical system.

16. The device as claimed in claim 1, wherein the first optical system has a diffractively acting optical element.

17. The device as claimed in claim 1, wherein the first optical system has an optical component for directing the beam onto the optical waveguide to be spliced, the device has a drive device for the optical component, wherein the optical component can be moved with the aid of the drive device in such a way that a position of the focusing area of the beam can be shifted in its longitudinal direction, in particular can be moved periodically.